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SUBSTANCES

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MEMORANDUM

SUBJECT: **Naled**: Addendum to EFED's Registration Chapter
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Introduction

This addendum updates and supplements the Environmental Fate and Effects Division's naled reregistration chapter *(EFED's Reregistration Chapter C for Naled, dated November 14, 1997)* and transmittal memorandum *(EFED's Reregistration Chapter C for Naled)*. Material contained within this addendum are the following:

1. Additional responses to Valent's comments (submitted to the Agency on August 26, 1998) on the aforementioned EFED chapter,
2. Ground- and surface-water modeling changes,
3. Revised RQs based on the modified naled usage,
4. RQs based on the new avian reproduction studies, and
5. Current data gaps.

Responses to Valent's Letter

EFED has responded directly to several of Valent's comments in two memoranda, *Valent's Comments Pertaining to Water and Fate Issues in the Naled: Draft Environmental Fate and*

Ecological Effects Chapter, November 14, 1997 (RED), DP Barcode: D249309 and *Response to Registrants's Comments on EFED Estimated Exposure of Naled to Nontarget Organisms and Toxicity Data Gap, DP Barcode: D249309* (dated 12/15/98). However, additional Valent comments that have not been previously addressed with ample detail are as follows:

1. The implications of using PRZM 2.3 instead of the current version of PRZM (PRZM 3.12),
2. Changes in the application rates, frequencies, and intervals for selected agricultural and non-agricultural uses of naled from those used in EFED's RED chapter,
3. Adjustments in the anaerobic aquatic metabolism for surface-water modeling, and
4. New data on the avian reproduction studies.

New Version of PRZM

EFED is currently using PRZM version 3.12 for surface-water Tier II modeling; however, the naled RED chapter was developed utilizing PRZM 2.3 modeling. The FIFRA Environmental Model Validation Task Force (FEMVTF) is currently in the process of validating PRZM.3.12. EFED has decided that the use of the updated PRZM version will not result in a substantive change to the risk assessment. Therefore, EFED will not rerun the modeling with PRZM 3.12.

Usage Rates for Naled

EFED has consistently attempted to use the current label information for application rates, frequencies, and intervals between applications for agricultural and non-agricultural uses of naled. The table on page 21 of EFED's RED chapter, "The Estimated Environmental Concentrations (EECs) for Naled", lists the above parameters that were used in EFED's water assessment and ecological risk assessment. Although EFED does not have a Use Closure Memorandum or current labels, which include the registrants most updated changes in agricultural and non-agricultural usage, EFED has been assured by SRRD that the EECs table for naled with the following risk mitigation previously agreed to by the registrant (items 1-4) and modifications (items 5-7) in Table 1 represent the labels currently supported by the registrant.

1. Reduction of the application rate for almonds from 7.2 to 2.8 lbs. ai/A and new EECs for naled use on almonds based upon a linear extrapolation.
2. Elimination of 7 applications for citrus and 6 applications for safflower (the registrant will continue to support 3 applications for both citrus and safflower).
3. Elimination of all rangeland uses; this includes hornflies both land and direct pond application.
4. Reduction of the application rates for citrus and cole crops to 0.938 lbs. ai/A only in Florida.
5. The frequency of applications for mosquitoes (direct applications to ponds) is not specified on the label. However, BEAD has indicated that the number of applications for the mosquito use is around 3 - 6 per season.
6. Under mosquitoes and direct application – the application rates of 0.1 and 0.25 lbs. ai/A are for mosquitoes and black flies, respectively.
7. The frequency of applications for black flies (3 per season) is uncertain; however, it was not modified for reevaluation.

Additional changes in Table 1 may impact the results of EFED's assessments. Typically, either an increase in the application rates or frequency of applications per season will increase the EECs.

The assessment that follows is reflective of the above revised use patterns. Any deviation from this use pattern, such as an increase in yearly application rates, voids this assessment as representative of these use patterns.

Table 1. PRZM/EXAMS Estimated Environmental Concentrations (EECs) for Naled
[Results reported are 1 in 10 year maximum values with 5% spray drift. Bolded numbers are modifications from EFED's RED chapter.]

Crop	Application Method	Application Rate (lbs. ai/A) (Number of Applications)	Max Initial EEC (PPB)	4 DAY EEC (PPB)	21 DAY EEC (PPB)	60 DAY EEC (PPB)	90 DAY EEC (PPB)
Almonds	Airblast	**2.8 (1)**	**12.6**	**4.3**	**1.0**	**0.56**	**0.38**
Grapes	Airblast	0.938 (6)	5.9	1.5	0.51	0.48	0.32
Cole crops	Aerial	**1.875*** (5)	12.7	3.1	1.1	0.84	0.56
Citrus	Airblast	**1.875*** (3)	11.1	2.4	0.85	0.50	0.34
Safflower	Aerial	0.70 (3)	1.9	0.43	0.25	0.14	0.09
Seed Alfalfa	Aerial	1.40 (3)	3.9	0.86	0.50	0.27	0.18
Cotton	Aerial	0.938 (5)	7.0	1.9	0.61	0.48	0.32
Mosquitoes and Black Flies: Direct Application	Pond – Mosquitoes	0.1 (3 - **6**)**	0.379	0.179	0.035	---	---
	Streams -- Black Flies	0.25 (3)	0.948	0.448	0.088	---	---

* Application rate reduced to 0.938 lbs. ai/A only in Florida.
** Surface-water modeling was performed on only 3 applications.

Anaerobic Aquatic Metabolism

The anaerobic aquatic metabolism used in PRZM/EXAMS modeling in the RED chapter was 4.5 days. A further evaluation of the data indicates that the anaerobic aquatic metabolism value should have been approximately 1 day. Taking into account the modeling guidance to increase this half-life by 3X, EFED does not believe that this change will significantly impact the risk assessment.

New Data – Avian Reproduction Studies (Bobwhite Quail and Mallard Duck)

The mallard duck (MRID No. 445179-01) and bobwhite quail (MRID No. 445179-02) chronic toxicity studies were received and validated as core on October 1, 1998. The mallard duck NOAEC will be used because it is the most sensitive of the two species tested with a NOAEC value of 260 ppm. The end-point is a reduction in the number of eggs.

Modeling Updates

The modeling updates include rerunning the SCI-GROW model for both naled and its primary degradate, dichlorvos (DDVP), and rerunning GENEEC for DDVP. The PRZM/EXAMS models were not rerun for naled because EFED has decided that the use of the updated PRZM version will not result in a substantive change to the risk assessment.

Ground-Water Modeling

The SCI-GROW model was rerun to incorporate the reduction in the application rate for naled on almonds and to include minor modifications in the SCI-GROW model since EFED's RED chapter was developed. The SCI-GROW model requires three input values-- the aerobic soil metabolism half-life, the soil organic carbon partition coefficient (Koc), and the use rate or the total amount of pesticide applied per year. The aerobic soil metabolism half-lives for naled and DDVP are 1.0 and 0.42 days, respectively. A Koc of 160.0 L/kg, which represents a sandy soil, was selected for naled because naled Koc's for four different soils ranged more than three-fold (EFED SOP). A Koc of 37.0 L/kg was selected for DDVP; this represents the median Koc of the four different soils (EFED SOP). Naled's annual use rates, which are listed in Tables 2 and 3, were calculated by multiplying the application rate by the number of applications during a year for the seven crops (almonds, grapes, cole crops, citrus, safflower, seed alfalfa, and cotton). The annual use rate ranged from 9.375 to 2.1 lbs. ai/A.

Naled degrades into DDVP by several processes. The maximum amount of DDVP formed from naled is approximately 20 percent of the amount of naled originally applied. In EFED's RED chapter, the molecular weight ratio between the DDVP and naled (0.58), which is a determining factor in the amount of DDVP formed from naled, was not considered; however, it should have been along with the degradation or transformation rate of 20 percent. Therefore, the applied rate of DDVP is equal to naled's use rate multiplied by 0.116 (0.20 multiplied 0.58).

The maximum naled and DDVP SCI-GROW model estimates for ground-water concentrations were for use on cole crops. The maximum naled and DDVP acute or chronic ground-water concentrations for these cole crops were 0.005 and 0.0004 ppb, respectively. Naled's and DDVP's SCI-GROW ground-water concentrations for almonds, grapes, cole crops, citrus, safflower, seed alfalfa, and cotton are listed in Tables 2 and 3.

Even though naled and DDVP are potentially mobile in ground water, they do not persist long enough in ground water to present a contamination concern. Concentrations in ground water of both compounds are unlikely to exceed 0.01 ppb based upon a maximum annual use rate of 9.375 lbs. ai/A (the use rate on cole crops) . Since these concentrations were estimated using the SCI-GROW screening model, which generates "worst case" concentrations , naled will leach to ground water with concentrations at or below this magnitude.

Table 2. SCI-GROW Acute and Chronic Ground-Water Concentrations for Naled			
Crop	Maximum Application Rate Per Year (lbs. ai/A)	Acute (ppb)	Chronic (ppb)
Almonds	2.8	0.001	0.001
Grapes	6.628	0.003	0.003
Cole Crops	9.375	0.005	0.005
Citrus	5.628	0.003	0.003
Safflower	2.1	0.001	0.001
Seed Alfalfa	4.2	0.002	0.002
Cotton	4.69	0.002	0.002

Table 3. SCI-GROW Acute and Chronic Ground-Water Concentrations for Dichlorvos (DDVP)			
Crop	Estimated Annual Transformation from Naled to DDVP (lbs. ai/A)	Acute (ppb)	Chronic (ppb)
Almonds	0.325	0.0001	0.0001
Grapes	0.653	0.0003	0.0003
Cole Crops	1.087	0.0004	0.0004
Citrus	0.653	0.0003	0.0003
Safflower	0.244	0.0001	0.0001
Seed Alfalfa	0.487	0.0002	0.0002
Cotton	0.544	0.0002	0.0002

Surface-Water Modeling

The reduction in the naled application rate on almonds, 7. 2 to 2.8 lbs. ai/A, were handled by adjusting the PRZM/EXAMS results from the RED chapter. Table 1 lists the changes in the EECs for the naled use on almonds. The change in EECs caused by this reduction in the application rate is a linear relationship based upon the ratio of 2.8 to 7.2 .

The input values for the GENEEC model runs for DDVP are the aerobic soil metabolism half-life, the aerobic aquatic metabolism half-life, the hydrolysis (pH 7) half-life, the photolysis half-life, the water solubility, the Koc, and an estimated DDVP application rate (0.116 of the original naled application, which is discussed in the ground-water section) for each crop. (See the Ground-Water Modeling section for a discussion on how the 0.116 factor was obtained.) The Koc value was based upon the average soil partition coefficient (K_d) and organic carbon content for four different soils evaluated during the naled study (EFED SOP). The input values for the DDVP GENEEC model runs are listed in Table 4.

Table 4. GENEEC Input Parameters for Dichlorvos (DDVP)	
Chemical	Dichlorvos (DDVP)
PC Code	84001
Solubility	15,600 mg L^{-1}
Hydrolysis Half-life (days) @ pH 7	5.19
Photolysis Half-life (days)	0.625
Aerobic Soil Metabolism (days)	0.42
Aerobic Aquatic Metabolism (days)	no data *
Soil Organic Carbon Partition Coefficient	89 L\kg
Source and Quality	EFED Naled RED chapter and preliminary fate assessment for DDVP
Prepared By	J. Peckenpaugh
Date	March 9, 1999
Crops	almonds, grapes, cole crops, citrus, safflower, seed alfalfa, and cotton
Application Rate (lbs. ai/A)	variable from .080 to 0.325 (0.116 of naled application rate)
Number of Applications	variable from 1 to 6
Application Method	aerial

* Approximated as 0 days half-life.

The results of the GENEEC model runs for DDVP are listed in Table 5. The peak and 56 day EEC concentrations in this table represent the acute and chronic surface water concentrations, respectively, for DDVP. The maximum DDVP estimates for surface water concentrations were obtained for naled applications on cole crops and citrus.

Substantial amounts of naled and DDPV are potentially available for runoff to surface waters for **only** a few days post-application. Even though both these chemicals are mobile, they have a low persistence. If a runoff event occurs very soon (1-2 days) after an application and if naled or DDVP is transported into surface water, naled will degrade rapidly (half-life < 1 day) and

DDVP will persist slightly longer (half-life ~ 5 days). Therefore, the impact of both of these chemicals on chronic surface water concentrations is assumed to be minimal.

Table 5. GENEEC EECs for Dichlorvos (DDVP)

Crop	Peak (ppb)	4 Days (ppb)	21 Days (ppb)	56 Days (ppb)
Almonds	1.1	0.93	0.39	0.15
Grapes	4.8	4.0	1.6	0.64
Cole Crops	9.6	7.9	3.3	1.3
Citrus	9.5	7.9	3.3	1.3
Safflower	3.6	2.9	1.2	0.48
Seed Alfalfa	7.1	5.9	2.4	1.0
Cotton	4.8	3.9	1.6	0.64

RQs Based on Decreased Application Rate for Almonds

Avian (Acute RQ)

The new application rate of 2.8 lbs. ai/A on almonds will exceed the acute restricted use level of concern (LOC) for short grass and the endangered species LOC for short grass, tall grass, and leaves and leafy crops. However, the new application rate of 2.8 lbs. ai/A on almonds resulted a decrease in the RQ value when compared to the original application rate of 7.2 lbs. ai/A (Table 6).

Table 6. RQ value for a single application of 7.2 and 2.8 lbs. ai/A

Almonds	Short Grass	Long Grass	Leafy Crop	Alfalfa/Clover
7.2 lbs. ai/A	0.80	0.37	0.43	0.20
2.8 lbs. ai/A	0.31	0.15	0.18	0.02

Avian (Chronic RQ)

Chronic LOCs were exceeded because the expected residues of 672 ppm, 308 ppm and 378 ppm divided by NOAEC value (260 ppm) was greater than 1.0. Therefore, the new application rate of 2.8 lbs. ai/A will exceed the chronic levels of concern for short grass, tall grass, and leaves and leafy crops. However, the new application rate of 2.8 lbs. ai/A indicates a decrease in the RQ value when compared to the original 7.2 lbs. ai/A application rate (Table 7).

Table 7. Chronic RQ values based on a single application of 7.2 and 2.8 lbs. ai/A

Almonds	Short Grass	Long Grass	Leafy Crop	Alfalfa/Clover
7.2 lbs. ai/A	6.53	3.04	3.46	1.62
2.8 lbs. ai/A	2.58	1.18	1.46	0.02

Aquatic Organisms

1. Freshwater Fish

The acute and chronic LOCs were not exceeded for freshwater fish (Table 8).

Table 8 Acute and chronic Risk Quotients for Freshwater Fish (rainbow trout) with an LC_{50} of 0.16 ppm and the fathead minnow LOAEC of 0.015 ppm of Naled.

Site/Application Method/ Rate in lbs. ai/A (No. of Apps.)	LC50 (ppm)	LOAEC (ppm)	EEC Initial/Peak (ppm)	EEC 60-Day Ave. (ppm)	Acute RQ (EEC/LC50)	Chronic RQ (EEC/LOAEC)
Almonds, aerial, 2.8 lb ai/A	0.16 mg ai/L	0.015	0.012	0.01	0.075	0.670

2. Freshwater Invertebrates

The acute and chronic LOCs were exceeded for freshwater invertebrates (Table 9).

Table 9. Risk Quotients for Freshwater Invertebrates Based On a (Daphne magna) EC50/LC50 of 0.3 ppb and a (Daphne magna) NOAEC of 0.098 ppb.

Site/Application Method/ Rate in lbs. ai/A (No. of Apps.)	*LC50 (ppb)*	*NOAEC/ MATC (ppb)*	*EEC Initial/ Peak (ppb)*	*EEC 21-Day Average*	*Acute RQ (EEC/LC50)*	*Chronic RQ (EEC/ NOAEC)*
Almonds, aerial 2.8 lb ai/A)	*0.3*	*0.098*	*12.6*	*1.0*	*42*[a]	*10.20*[b]

[a] *Exceeds acute high, acute restricted, and acute endangered species LOCs.*
[b] *Exceeds chronic LOCs.*

***3.* Marine Fish**

The acute high risk was exceeded for estuarine/marine fish. Chronic estuarine/marine fish LOC could not be determined due to lack of data (Table 10).

Table 10. Acute and chronic Risk Quotients for Estuarine/Marine Fish (Sheepshead Minnow) with an LC_{50} of 14 ppm and the fathead minnow LOAEC is unknown for Naled due to lack of data.

Site/Application Method/ Rate in lbs. ai/A (No. of Apps.)	LC50 (ppm)	LOAEC (ppm)	EEC Initial/Peak (ppm)	EEC 60-Day Ave. (ppm)	Acute RQ (EEC/LC50)	Chronic RQ (EEC/LOAEC)
Almonds, aerial 2.8 lbs. ai/A	14	0.0	12.6	0.00	0.9	Unknown

4. Marine Invertebrate

The acute estuarine/marine invertebrate LOC was exceeded. The chronic estuarine/marine invertebrate LOC could not be determined due to lack of data (Table 11).

Task 11. Risk Quotients for Estuarine/Marine Invertebrates Based on Mysid Shrimp LC_{50} of 8.8 ppb. The NOAEC for mysid shrimp is unknown due to lack of data.

Site/ Application Method/ Rate in lbs. ai/A (No. of Apps.)	LC50 (ppb)	NOAEC/ MATC (ppb)	EEC Initial/Peak (ppb)	EEC 21-Day Average	Acute RQ (EEC/LC50)	Chronic RQ (EEC/ NOAEC)
Almonds, aerial 2.8 lb ai/A)	8.8		12.6	1.0	1.43[a]	Unknown

[a] Exceeds acute high risk LOC.

RQs Based on Chronic Avian Reproduction Studies

The avian chronic LOCs were exceeded for the following crops using a single application: almonds, citrus, cole crops, and alfalfa seed (Table 12).

Table 12. Avian Acute and Chronic Risk Quotients for Single Application of Nongranular Products (Aerial) Based on a (Bobwhite Quail) LC_{50} of 2117 ppm and a (mallard duck) NOAEC of 260 ppm.

Site/App. Method	App. Rate (lbs. ai/A)	Food Items	Maximum EEC (ppm)	LC50 (ppm)	NOAEC (ppm)	Acute RQ (EEC/ LC50)	Chronic RQ (EEC/ NOAEC)
Almonds, aerial	2.8	Short Grass	672	2117	260	0.32[b]	2.58 [d]
		Tall Grass	308	2117	260	0.15[c]	1.18 [d]
		Broadleaf plants/Insects	378	2117	260	0.18[c]	1.45 [d]
		Seeds	42	2117	260	0.02	0.16
Grapes/Cotton, aerial	0.938	Short Grass	225	2117	260	0.11[c]	0.87
		Tall Grass	103	2117	260	0.05	0.40
		Broadleaf plants/Insects	127	2117	260	0.06	0.49
		Seeds	14	2117	260	0.01	0.05
Cole Crops / Citrus	1.875	Short Grass	450	2117	260	0.21[b]	1.73[d]
		Tall Grass	206	2117	260	0.09	0.80
		Broadleaf plant/Insect	253	2117	260	0.12[c]	0.97
		Seeds	28	2117	260	0.01	0.10
Safflower	0.70	Short Grass	168	2117	260	0.08	0.65
		Tall Grass	77	2117	260	0.04	0.30
		Broadleaf plant/Insect	95	2117	260	0.04	0.36
		Seeds	11	2117	260	0.00	0.04
Seed Alfalfa	1.40	Short Grass	336	2117	260	0.15[c]	1.30[d]
		Tall Grass	154	2117	260	0.07	0.60
.		Broadleaf plant/Insect	189	2117	260	0.09	0.73
		Seeds	21	2117	260	0.01	0.08
Mosquito	0.10	Short Grass	24	2117	260	0.01	0.09
		Tall Grass	11	2117	260	0.01	0.04

a Exceeds acute high, acute restricted, and acute endangered species LOCs.
b Exceeds acute restricted and acute endangered species LOCs.
c Exceeds acute endangered species LOCs.
d Exceeds chronic LOCs.

The avian chronic LOCs were exceeded for multiple applications for all crops (Table 13).

Table 13. Avian Acute and Chronic Risk Quotients for Multiple Applications of Nongranular Products (Broadcast) Based on a (bobwhite quail) LC_{50} of 2117 and a (mallard duck) NOAEC of 260 mg ai/kg.

Site/ Application Method	App.Rate (lbs. ai/A) No. of Apps.	Food Items	Maximum EEC (ppm)	LC50 (ppm)	NOAEC (ppm)	Acute RQ (EEC/ LC50)	Chronic RQ (EEC/ NOAEC)
Almonds, aerial	2.8 (1)	Short grass	672	2117	260	0.32[b]	2.58[d]
		Tall grass	308	2117	260	0.15[c]	1.18[d]
		Broadleaf plants/Insects	203	2117	260	0.10	0.78
		Seeds	42	2117	260	0.02	0.16
Grapes, aerial	0.938 (6)	Short grass	1350		260		5.19[d]
		Tall grass	619		260		2.38[d]
		Broadleaf plants/Insects	759		260		2.92[d]
		Seeds	84		260		0.32
Cole Crops	1.875(5)	Short grass	2250		260		8.65[d]
		Long grass	1031		260		3.96[d]
		Broadleaf plant/Insect	1266		260		4.86[d]
		Seeds	141		260		0.54
Citrus	1.875(3)	Short grass	1350		260		5.19[d]
		Long Grass	619		260		2.38[d]
		Broadleaf plant/Insect	759		260		2.91[d]
		Seeds	84		260		0.32
Safflower	0.70(3)	Short Grass	504		260		1.94[d]
		Long Grass	231		260		0.89
		Broadleaf plant/Insect	284		260		1.1[d]
		Seeds	32		260		0.12
Seed Alfalfa	1.40(3)	Short Grass	1008		260		3.88[d]

Table 13. Avian Acute and Chronic Risk Quotients for Multiple Applications of Nongranular Products (Broadcast) Based on a (bobwhite quail) LC_{50} of 2117 and a (mallard duck) NOAEC of 260 mg ai/kg.

Site/ Application Method	App.Rate (lbs. ai/A) No. of Apps.	Food Items	Maximum EEC (ppm)	LC50 (ppm)	NOAEC (ppm)	Acute RQ (EEC/ LC50)	Chronic RQ (EEC/ NOAEC)
		Long Grass	462		260		1.78[d]
		Broadleaf plant/Insect	567		260		2.2[d]
		Seeds	63		260		0.24
Cotton	0.938 (5)	Short Grass	1126		260		4.33[d]
		Long Grass	516		260		1.98[d]
		Broadleaf plants/Insect	633		260		2.43[d]
		Seeds	70		260		0.27
Mosquito	0.1 (3)	Short Grass	72		260		0.28
		Long Grass	33		260		0.13
		Broadleaf plant/Insect	41		260		0.16
		Seeds	5		260		0.02

b. RQ is exceeded for restricted use.
c. RQ is exceeded for endangered species.
d. RQ is exceeded for chronic risk.

Aquatic Risk Assessment for Mosquito Use

The risk to aquatic organisms was previously assessed based upon 3 applications of naled per season at an application rate of 0.1 lbs. ai/A. The acute and chronic levels of concern were not exceeded. Risks to aquatic organisms will not be significantly increased (less than a 2-fold increase in EECs) if naled is applied 6 times per season at the 0.1 lbs. ai/A application rate with a 7 day application interval.

Data Gaps (Estuarine/Marine Studies)

The following two estuarine/marine studies are required in order for EFED to complete a risk assessment for aquatic invertebrates :

- 72.5 Life-Cycle Fish (Sheepshead Minnow)
- 72-4(b) Life-Cycle Aquatic Invertebrate (Estuarine/Marine, Mysid Shrimp)

Summary

This addendum contains updates and supplements to EFED's RED chapter (dated 11/14/97). The following items summarizes these changes:

- EFED will not rerun the PRZM model runs because the updated model version will not result in a substantive change to the risk assessment.

- The naled usage rates have been modified since the RED was completed. EFED has been assured by SRRD that Table 1 represents the current label changes. Any changes in Table 1 may impact the results of EFED's assessments.

- The adjustment in the naled application rate on almonds (a reduction from 7.2 to 2.8 lbs. ai/A) did not impact EFED's drinking water assessment because EFED does not believe that pesticides applied to almonds grown in the arid California environment will likely impact a significant drinking water source.

- The elimination of 7 applications of naled on citrus does affect the drinking water assessment for surface-water sources. Previously, citrus with 7 applications of naled had the maximum EECs; however, with the modified usage, cole crops with 5 applications of naled will have the maximum acute and chronic EECs of 12.7 and 0.6 ppb (Table 1).

- Surface-water modeling (EXAMS) for mosquito control was limited to three direct pond applications per year.

- The maximum DDVP estimates for surface-water concentrations were obtained for naled applications on cole crops and citrus.

- Both naled and DDVP are mobile, but they have low persistence; therefore, the impact of both these chemicals on chronic surface-water concentrations will be minimal.

- In ground water, the concentration on naled and DDVP is likely to exceed 0.01 ppb.

- The new application rate of 2.8 lbs. ai/A on almonds will exceed the avian acute restricted use level of concern (LOC) for short grass and the endangered species LOC for short grass, tall grass, and leaves and leafy crops.

- The new application rate of 2.8 lbs. ai/A will exceed the avian chronic levels of concern for short grass, tall grass, and leaves and leafy crops.

- The acute and chronic LOCs were not exceeded for freshwater fish.

- The acute and chronic LOCs were exceeded for freshwater invertebrates.

- The acute high risk was exceeded for estuarine/marine fish. Chronic estuarine/marine fish LOC could not be determined due to lack of data.

- The acute estuarine/marine invertebrate LOC was exceeded. The chronic estuarine/marine invertebrate LOC could not be determined due to lack of data.

- The avian chronic LOCs were exceeded for the following crops using a single application: almonds, citrus, cole crops, and alfalfa seed.

- The avian chronic LOCs were exceeded for multiple applications for almonds, grapes, cole crops, citrus, safflower, seed alfalfa, and cotton.

- Risks to aquatic organisms will not be significantly increased if naled is applied 6 times per season at the 0.1 lbs. ai/A application rate with a 7 day application interval for mosquito control.